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CONTRIBUTIONS TOWARD A MONOGRAPH OF THE
MUTILLIDAE AND THEIR ALLIES OF AMERICA
NORTH OF MEXICO

BY JAMES CHESTER BRADLEY

As a result of five years collecting in Georgia, I some time ago became much interested in the study of our southern Mutillidae. With the lapse of years this interest has widened, and it has been my good fortune recently to have nearly three months of uninterrupted leisure, which I have devoted entirely to the study of this family and its allies. Much more material must be gathered, especially from the Southwest, before anything like a satisfactory monograph of the Mutillidae of the United States can be undertaken. At present I wish to present, as a result of my recent work, several papers contributory to our knowledge of the family.

When the study of a group of insects approaches in any locality what one might term a quantitative stage, we begin to feel some confidence in the degree of completeness of our knowledge of it in that place. This stage has been approached by the very extensive collections of Mutillidae made by Mr. Nathan Banks in eastern Virginia. I wish to express to him my sincere appreciation of his kindness in permitting me to study his entire collections from that region. His material has pointed toward the solution, or actually solved, many questions that have arisen in this work.

I also wish to express my obligations to the following gentlemen for the loan of material: Mr. G. P. Engelhardt, collections from Long Island; Mr. Wm. T. Davis, collections made in Georgia and Florida; Dr. William A. Hilton, collections from southern California, belonging to Pomona College; Mr. G. M. Greene, collections from New Jersey and Virginia; Mr. Franklin Sherman, Jr., collections from North Carolina; Mr. Carl Schaeffer, the eastern Mutillidae of the Brooklyn Museum; Dr. Frank E. Lutz, collections from Florida belonging to the American Museum of Natural History; and Dr. Leonard Haseman, specimens from Missouri.

In describing colors in the papers that follow I have used the terms as defined by Ridgway.¹

The classification of the family Mutillidae is moot. I do not believe that there is at present any firmer basis than personal opinion or prejudice for answering certain queries that arise in regard to genera, their status and relations. As time permits I hope to undertake a comparative study of the genitalia of the males with the hope of solving some of these questions. In the mean time I do not wish to express more than a tentative opinion in regard to the status of such groups as *Pseudomethoca*, *Dasy-mutilla*, *Sphaerophthalma*, *Photopsis*, etc. *Ephuta* Say and *Timulla* Ashmead are on the other hand, clearly defined groups certainly deserving of generic differentiation from the other North American Mutillidae.

The attempt made by the late Dr. Ashmead to divide the Mutillidae into two subfamilies and four tribes, or any number of either, is entirely untenable. With this statement I believe any one will agree who may base his conclusions upon a knowledge of the characters presented by the known species, rather than upon an enthusiasm for a pigeon-hole system of classification.

To any one who wishes to settle for himself the validity of the Ashmeadian classification I would suggest the following comparisons:

a). Compare the shape of the petiole of *waco* female and male (type of *Pycnomutilla*) with that of *harmonia* female (type of *Bruesia*) and *bexar* male (pretty certainly the male of *harmonia*). The former are placed by Ashmead in the Ephutinae characterized only by having the first segment petiolate, the latter in Mutillinae distinguished by having it sessile. Compare carefully the females of *waco* and *harmonia*, noting the shape of the head, thorax, eyes, clypeus, first segment, and character of the pygidium. Is there any basis apparent for their generic differentiation? Compare the males of *waco* and *bexar*, noting especially the characteristic crest of hairs on the second ventral segment. Despite the short wings of *waco* is their generic identity not strongly indicated?

¹ Color standards and color nomenclature. By Robert Ridgway Washington, D. C., published by the Author, 1912. 1 p. l., iv, 44 p. 53 col. pl.

b). Examine the petioles of *pluto* (type of *Neophotopsis*), *imperialis* (type of *Photopsis*), *exogyrus* (type of *Odontophotopsis*), *helicaon* (*Photopsis*), and *albicincta* (*Photopsis*). These are all supposed to be sessile and to belong to the Mutillinae. Compare with them the petioles of *pennsylvanica* (= *scaeva*, type of *Sphaerophthalma*), *lepeletierii* (a *Dasymutilla*), and the male of *waco* (type of *Pycnomutilla*). These three are placed by Dr. Ashmead in the Ephutinae, characterized by petioliform first segments.

c). Compare the eyes of the female *grandiceps* (type of *Myrmilloides*) and the female of *canadensis* (type of *Pseudomethoca*) with *simillima* or *montivaga* (one of which is doubtless the female of *sanbornii*, type of *Nomiaephagus*). In *Nomiaephagus* the eye is supposed to be "small, rounded, hemispherical or ellipsoidal, prominently convex, smooth and highly polished, not facettled or with the facets vaguely defined" and therefore to belong to the tribe Photopsidini. The two former (i. e. *grandiceps* and *canadensis*), are supposed to have their eyes "larger, not rounded or hemispherical, ovate, obovate or ellipsoidal, always distinctly facettled." Do the specimens carry out the distinction, if there be any? Is the distinction as stated a wise one for the recognition of two tribes? Before deciding about the facetting, compare a number of specimens of each species and also of *waco*, *propinqua*, and *nana* (in the latter two they are supposed not to be facettled). Compare the eyes of the males of the first mentioned species, including *sanbornii*.

d). Compare the eyes of *exogyrus* (type of *Odontophotopsis*), *pluto* (type of *Neophotopsis*), *nana* (type of *Micromutilla*), and *imperialis* (type of *Photopsis*), all of which are supposed to have the eyes "small, rounded, etc.," (and all of which really have extraordinarily large, bead-like eyes) with the males of *grandiceps* (type of *Myrmilloides*) and *canadensis* (type of *Pseudomethoca*), in both of which they are said to be "larger, not rounded, etc." The reverse as to size is most emphatically the case. Furthermore the eyes of *nana* are strongly facettled, although placed in the Photopsidini where they are supposed not to be.

e). Examine the mandibles of *sanbornii* (type of *Nomiaephagus*) and of *bexar* (probable male of *harmonia*, type of *Bruesia*).

They show no trace of the inferior incision which is supposed to separate them from certain other genera.

f). Compare the wings of several specimens of *imperialis* and of *pluto* (type of *Neophotopsis*). The former is supposed to have two, the latter only one, recurrent vein, that being the method of distinguishing between the two genera. In *imperialis* the second recurrent vein is represented by a very faint color mark, sometimes perceptible with difficulty and for only part of its length. In *pluto* it is usually less distinct, but sometimes faintly indicated. Is it an acceptable character for separating genera and groups of genera?

The following table will illustrate the classification of the Mutillidae, albeit a tentative one, used in the present series of papers.

GENERA	SUBGENERA	CHIEF SYNONYMS	TYPE SPECIES	EQUIVALENT SPECIES GROUPS OF FOX'S CLASSIFICATION
<i>Myrmilloides</i> André	.....	.....	<i>grandiceps</i> Blake	<i>grandiceps</i>
<i>Pseudomethoca</i> Ashmead	{ <i>Pseudomethoca</i> Ashmead	.....	<i>canadensis</i> Blake	<i>canadensis</i> (except part)
	{ <i>Nomiaephagus</i> Ashmead	.....	<i>sanborni</i> Blake	{ <i>similima</i> plus part of <i>canadensis</i>
	{ <i>Bruesia</i> Ashmead	.....	<i>harmonia</i> Fox	{ <i>waco</i> plus <i>asopus</i>
<i>Dasymutilla</i> Ashmead	{ <i>Dasymutilla</i> Ashmead	[<i>Pycnomutilla</i> Ashmead]	<i>waco</i> Blake	<i>occidentalis</i>
	{ <i>Sphaerophthalma</i> Blake	[<i>Ephuta</i> André (<i>nec</i> Say)]	<i>gorgon</i> Blake	<i>pennsylvanica</i>
<i>Sphaerophthalma</i> Blake	{ <i>Photomorplus</i> Viereck	.....	[<i>scava</i> Blake]	.....
	{ <i>Odontophotopsis</i> Viereck	.....	= <i>pennsylvanica</i> Lepeletier	.....
	{ <i>Tetraphotopsis</i> Ashmead	.....	<i>alogus</i> Viereck	.....
<i>Photopsis</i> Blake	{ <i>Photopsis</i> Blake	.....	<i>exogyrus</i> Viereck	{ <i>anthophorae</i> part, plus <i>imperialis</i> part
	{ <i>Physelapsus</i> , n. subg.	[<i>Agama</i> Blake]	<i>T. hubbardi</i> Ashmead	.....
	{ <i>Mutilla</i> Linnaeus	[<i>Neophotopsis</i> Ashmead]	<i>imperialis</i> Blake	.....
<i>Mutilla</i> Linnaeus	{ <i>Mutilla</i> Linnaeus	[<i>Micromutilla</i> Ashmead]	<i>imperialis</i> Blake	{ <i>anthophorae</i> part, plus <i>imperialis</i> part
<i>Ephuta</i> Say	{ <i>Timulla</i> Ashmead	[<i>Pyrromutilla</i> Ashmead]	<i>pluto</i> Fox	.....
	.....	.....	<i>nana</i> Ashmead	.....
	.....	.....	<i>anthophorae</i> Ashmead	.....
<i>Morsyma</i> Fox	.....	[<i>Rhopromutilla</i> André]	<i>papaga</i> n. sp.	.....
	.....	.....	<i>europaea</i> Linnaeus	Not American
	.....	.....	<i>dubitata</i> Smith	<i>hexagona</i>
	.....	.....	<i>scrupea</i> Say	<i>scrupea</i>
	.....	.....	<i>ashmeadii</i> Fox	Genus <i>Morsyma</i>

I. A REVISION OF EPHUTA SAY, A GENUS OF MUTILLIDAE EQUIVALENT TO THE SPECIES GROUP SCRUEPA OF FOX

In describing several new males of this genus, I take occasion to present a revised key to the species of America north of Mexico, and a brief review of our knowledge of the group.

A Key to the Males of the Species of America North of Mexico (The females of only one species, *puteola*, are known.)

1. Head and thorax entirely black. (2)
Head, thorax, and abdomen except apex red; an interrupted, straight carina between the eyes and bases of the antennae. . . **slossonae** Fox
2. Abdomen entirely red. (3)
Entire insect black, or in one species the second abdominal segment largely red (4)
3. Petiole red, except at base; second abdominal segment rather coarsely, closely punctured, with pubescence entirely reddish yellow.
copano Blake
Petiole black; second abdominal segment more coarsely punctured, its pubescence largely dusky. **susura** Melander
4. Tegulae finely, often sparsely punctulate, more or less polished, at most with a few medium sized punctures near the base. (5)
Tegulae very rugosely punctured and hirsute entirely or nearly to the tip. (7)
5. Tegulae with a strong, longitudinal, curved, ridge, minutely and evenly punctulate all over, with no coarser punctures; transverse diameter of posterior ocelli equal to approximately one-third of their distance from the eyes, equal to about three-fourths their distance from each other, greater than their distance from the front ocellus; abdomen entirely black. **tegulicia** n. sp.
6. Tegulae not longitudinally ridged, or very feebly ridged at base, in which case there are some coarser punctures, and the second abdominal segment is red. (6)
6. Transverse diameter of the posterior ocelli slightly less than one-fourth as great as their distance from the eyes, equal to about one-third of their distance from each other and about two-thirds of their distance from the front ocellus; tegulae with minute, regular punctulation only; entire insect black, the apical segments with griseous bands. . . **grisea** n. sp.
- Transverse diameter of the posterior ocelli about one-half as great as their distance from the eyes, equal to seven-ninths of their distance from each other, and about one and one-half times their distance from the front ocellus; tegulae with a few coarse basal punctures; second abdominal segment red, the apical segments with only scant, scattered, griseous, pubescence. **battlei** n. sp.

7. Carinae below the antennae parallel for a distance, usually about half-way to the margin of the clypeus, where they are produced into a tooth, sometimes connected by a transverse carina, and then diverge in straight lines to the sides of the anterior margin of the clypeus, delimiting a triangle; propodeum with its posterior face reticulate, not separated from the dorsal by a prominent transverse ridge. **scrupea** Say
- Carinae below the antennae flaring immediately in a wide curve to the sides of the anterior margin of the clypeus; caudal face of the propodeum not reticulate, usually polished and sometimes with weak rugosities, separated from the dorsal surface by a strong transverse ridge. . . . **pauzilla** n. sp.

Ephuta slossonae (Fox)

1899. *Mutilla slossonae* Fox, Trans. Amer. Ent. Soc., 35:273, ♂.

Known only from the unique type from "Florida," until recently recorded by G. M. Greene from Loggerhead Key, Dry Tortugas, July 8, 1912, one specimen collected by Messrs. Rehn and Hebard. I have received two specimens from Mrs. Slosson, collected at Biscayne Bay, Florida; two from Clearwater, Florida, 29 April, 1908, collected by E. P. VanDuzee; one from Exter, Florida, also collected by Mr. VanDuzee, in the collection of the American Museum of Natural History.

The coloration is quite constant.

Ephuta copano (Blake)

1871. *Mutilla copano* Blake, Trans. Amer. Ent. Soc. 3:232, ♂.

Texas and Mexico.

Ephuta susura (Melander)

1903. *Mutilla susura* Melander, Trans. Amer. Ent. Soc., 39:324, ♂.

I have not seen this species. The description would apply in all details except as noted in the key to *copano*, but Melander states that the second dorsal segment is more coarsely punctate than in that species.

Known from the unique type from Galveston, Texas, presumably in the collection of Mr. Melander.

Ephuta tegulicia n. sp.

♂. Coal-black; with erect and appressed short, white, pubescence, the head and thorax appearing griseous, the petiole and the second dorsal segment with an apical band of short, thick, white, appressed, pubescence, on the other segments only sparse, erect, white hairs; wings slightly infuscated, a little paler in the middle. Length 8 mm.

Head coarsely rugosely punctured, much obscured by vestiture below the ocelli; transverse diameter of the hind ocelli, .7 mm., of the front ocellus, .21

mm.; the distance of the former from each other, .25 mm., from the eyes, .47 mm., from the front ocellus, .1 mm.; between the antennae two high, thin carinae diverge shortly, then proceed downward nearly parallel but very slightly converging about half-way to the anterior margin of the clypeus, at which point they are connected by a carina, turn outward, and rapidly diminishing in height, disappear a considerable distance before reaching the reflexed margin of the clypeus, the enclosed space rather oval, smooth and highly polished. Third antennal segment broader than long, approximately two-thirds of the length of the fourth, on its inferior surface.

Anteriorly the thorax is squarely truncate, its cephalic surface vertical, impunctate, polished, the humeral angles produced and strongly carinate, an inferior prolongation of these carinae traversing the side pieces of the pronotum obliquely. The most obvious features of the thorax are the large, very thick, tegulae, shaped like a horse-mussel, which slope on either side from a median longitudinal ridge running their entire length, and are very minutely and regularly, but not closely punctulate and setose. The coarse punctuation of the pronotum is much concealed by vestiture, that of the mesonotum less so and more coarse; the scutellum is gibbous and rugosely punctured, with erect hairs longer than elsewhere on the dorsum; dorsal surface of the propodeum very coarsely reticulate or irregularly areolate, the median cells coalesced into a large irregular areola, with a median carina abbreviated in front and behind, this surface with rosette-like appressed, fine and silky pubescence; the truncate, polished, smooth caudal surface separated from the dorsal by a dentate ridge; the lateral surfaces with three or four rows of coarse reticulate punctures.

In the hind wing Sc+R+M terminates as a chitinized vein, about half-way to the apex of the cell M, and shows metallic violaceous reflections; other veins are piceous.

Petiole transverse, rather cylindrical, coarsely punctured, with a keel but no tooth beneath; second segment evenly and coarsely, remaining segments more finely and sparsely, punctured, the pygidial segment rugosely punctured; the last ventral segment black, and closely, somewhat rugosely punctured; third to sixth and base of seventh dorsal segments with a longitudinal keel.

Type.—Fedor, Lee County, Texas, 1 to 7 June, 1909. Collection of Mr. Nathan Banks.

***Ephuta grisea* n. sp.**

♂. Coal-black, with erect and appressed white pubescence, the apex of the petiole and second dorsal segment with a band of fine, curly, white pubescence, similar but weaker bands on the apex of the third and fourth segments; wings somewhat unevenly infuscated. Length 9 mm.

Head coarsely rugosely punctured, the front a little less coarsely than the vertex, the sculpture concealed above the base of the antennae by the vestiture; transverse diameter of the hind ocelli .11 mm., of the front ocellus .17 mm.; distance of the former from each other .32 mm., from the eyes .53 mm., from the front ocellus .17 mm.; from between the antennae a carina on each side

slopes away in a nearly straight line toward the side of the clypeus, disappearing before reaching the same and thus setting off a not very deep triangular basin with two tall sides and a not very wide base, its bottom roughened, not polished, the carinae each with a weak median tooth; anterior margin of clypeus not reflexed. Third antennal segment broader than body, about two-thirds the length of the fourth.

Dorsum with sculpture and vestiture as described for *tegulicia*, but the humeral angles are much less pronounced, hardly carinate, the oblique carinae on the sides of the pronotum weak and concealed by vestiture. The tegulae are large, but not thick as in *tegulicia*, evenly but not strongly convex, without a median ridge, very sparsely, finely and minutely punctulate, the punctures uneven and apically almost wanting. Dorsal face of propodeum coarsely reticulate, the reticulations smaller and more numerous than in *tegulicia*, with a median longitudinal irregular area; basally with appressed silky pubescence, the posterior face separated from the dorsal by an indistinct irregular carina, more weakly reticulate than the dorsal; the lateral faces with several rows of reticulate punctures.

Veins piceous; Sc+R+M in the hind wings weakly violaceous, about half as long as the median cell.

Petiole rather cylindrical, coarsely punctured, with a strong ventral keel, not toothed; second segment evenly, closely, coarsely punctured, a little more coarsely on the venter, its dorsal disc noticeably flattened, laterally with large areas of very fine short appressed white pubescence, which replace the felted lines of many Mutillidae; the remaining dorsal segments are a little less coarsely but not sparsely punctured, the punctures closer on the pygidium, each of these with a longitudinal median keel; the last ventral segment reddish, buff at base.

Type material.—Holotype: Colorado, collection of the American Entomological Society; two paratopotypes; two paratypes from Montana, all in the collection of that Society.

All of these were included by Mr. Fox under the species *scrupea* Say. The last ventral segment is sometimes piceous.

***Ephuta battlei* n. sp.**

♂. Coal-black, the second abdominal segment red, with a darker stain above, the other segments piceous; clothed with rather scanty appressed and erect white pubescence, the petiole above and the apex of the second dorsal segment each with a band of appressed pubescence, the latter rather meagre; front wings fuscous, the median cell nearly hyaline; apical third of the hind wings fuscous. Length 5.5 mm.

Head coarsely, rugosely punctured, neither more finely punctured nor obscured by vestiture below the front ocellus, above the antennae with a deep median channel; ocelli unusually large, the transverse diameter of the posterior ocelli .15 mm., of the anterior ocellus .15 mm.; the distance of the former from each other .19 mm., from the eyes .28 mm., from the front ocellus .09 mm.; between the antennae high carinae enclose a small, deep, square basin, from

the lower lateral angles of this a straight carina on each side proceeds at a wide angle almost to the side of the reflexed margin of the clypeus, enclosing a smooth, polished, equilateral triangle with truncate apex. Third segment of the antennae below wider than long, almost as long as the pedicel, hardly more than half as long as the fourth segment.

Humeral angles very prominent, strongly carinate, the carina below bent and traversing the side pieces of the pronotum almost cephalo-caudad; pronotum with side pieces impunctate, dorsally with the mesonotum very coarsely punctured, sparsely pubescent; scutellum convex but hardly gibbous, coarsely punctured; mesopleura coarsely punctured, densely pubescent; dorsal surface of propodeum with two rows of large reticulations or areoles, becoming smaller laterally, the median basal one largest; dorsal surface separated from the smooth, polished posterior surface by a prominent transverse arched rim; sides irregularly reticulate.

Veins piceous, wanting in the hind wings, there being no closed cells, but Sc+R+M and a short weakly chitinized piceous stump of another vein, are present, but without violaceous reflections.

Petiole rugose, rather cylindrical, transverse, keeled ventrally, the keel with an anterior recurved tooth; second segment coarsely evenly punctured, the punctures becoming sparse and finer posteriorly; remaining segments each with a median keel, and finely, sparsely punctured, the last more closely but not roughly nor coarsely; last ventral segment buff, weakly punctured.

Type material.—Holotype: Bainbridge, Decatur County, Georgia, 15 to 27 July, 1909, collected by the author. Collection of Cornell University, No. 106.1. One paratopotype, same date.

Dedicated to Paul Battle of Bainbridge, Georgia, my faithful companion on many a collecting trip.

***Ephuta scrupea* Say**

1836. *Mutilla scrupea* Say, Journ. Boston Soc. Nat. Hist., 1: 297, ♂.

Ocellar measurements are as follows: transverse diameter of the posterior ocelli .13 mm., of the front ocellus .16 mm.; distance of the former from each other .19 mm., from the eyes .40 mm., from the front ocellus .10 mm.

Of a large series of specimens of *Ephuta* collected by Mr. Nathan Banks in Virginia, twenty-eight belong here and nineteen in *pauquilla*. In deciding to which of these two species Say's name *scrupea* should apply, I was guided by his description of the propodeum, which would not seem to fit *pauquilla* so well as the other. The remainder of the description might apply to either.

Of the specimens assigned by Fox¹ to *scrupea*, those from Connecticut and Delaware belong to *pauquilla*, the one from Texas

¹ Trans. Amer. Ent. Soc., 1899, 25: 272.

is of doubtful identity and probably represents an undescribed species, as does the one from California. The specimens from Colorado and Montana become the types of *grisea*. It will, therefore, be seen that Fox did not know what I consider the true *scrupea*. It is unlikely that the species occurs in the Rocky Mountain States.

Habitat: INDIANA (type locality). VIRGINIA: Falls Church, June 19, July 7, 13, 14, 16, 21, 28, 31, August 2, 7, 11, 30, 31, September 19, 25 specimens; Great Falls, July 13 and 31, 3 specimens; Glencarlyn, July 26, 3 specimens, all collected by Mr. Nathan Banks.

***Ephuta pauxilla* n. sp.**

♂. Coal-black, with meagre white pubescence; apex of petiole and of the second segment with a band of appressed white pubescence; wings medially nearly hyaline, infumed around the edges. Length 8 mm., paratype 6 to 10 mm.

Head coarsely rugoso-punctate, less coarsely on the front, which is without a median channel at base of the antennae; transverse diameter of the posterior ocelli .13 mm., of the anterior ocellus .16 mm., distance of the former from each other .26 mm., from the eyes .43 mm., from the anterior ocellus .13 mm.; from between the antennae two high, thin carinae flare in a somewhat sinuous curve, abruptly diminishing in height, to the sides of the margin of the clypeus, setting off a spatulate basin with striolate bottom.

The humeral angles are weak, scarcely carinate, pronotum and mesonotum coarsely punctured, the latter with flattened irregular interstices, side pieces of the former punctate only above the almost longitudinal median carina; dorsum sparsely pubescent; tegulae large, very rugose, thick, weakly ridged, but the ridge lost in the rugose punctures; scutellum convex but hardly gibbous, coarsely punctured; mesopleura with coarse punctures obscured by vestiture; dorsal surface of the propodeum with coarse reticulate areas, becoming smaller laterally, the basal median one largest, elongate, irregular, the posterior surface not or but slightly roughened, not reticulate, separated from the dorsal by a prominent, arched, crenulate, ridge.

Veins piceous, very faint in the hind wings; Sc+R+M chitinized basally in the latter.

Petiole rugose; rather cylindrical, the keel with a long, anterior, recurved, blunt hook, and two basal teeth; second segment evenly, coarsely punctured; apical dorsal segments sparsely punctulate, more closely but not coarsely on the last, each with a keel; last ventral segment mostly buff, weakly punctured.

Type Material.—Holotype: Falls Church, Virginia, collected by Mr. Nathan Banks from honey dew on a tulip tree, August 8. Cornell University No. 105.1; eighteen paratopotypes, July 12, 14, 21, 28, August 2, 4, 9, 23, 31 and September 17. A specimen from Fedor, Lee County, Texas, June 21, 1909, seems identical.

Ephuta puteola (Blake)

1879. *Mutilla puteola* Blake, Trans. Amer. Ent. Soc., 3:252, ♀.

The female only known, and may include more than one species, which however I am unable to separate. A specimen collected by Mr. Banks in Virginia only 3 mm. in length and with sparse small punctures on the head, is possibly distinct, but it seems advisable to await more material before deciding.

Habitat.—NEW YORK: Yaphank, Long Island, September 24, '11, 2 ♀, and Long Island, May 19, '07, 1 ♀, (G. P. Engelhardt), [coll. of same]. PENNSYLVANIA: Beatty, 1 ♀; Philadelphia, 1 ♀, [Amer. Ent. Soc.]. VIRGINIA: Pennington Gap, 1 ♀, [Amer. Ent. Soc.]; Falls Church, Great Falls, and Glencarlynn, May 10 to September 5, 11 ♀, (N. Banks), [coll. N. Banks]. NORTH CAROLINA: Southern Pines, July 18, '08, 1 ♀, (A. H. Manee). GEORGIA: Rabun County, June '09, 2000 to 3700 ft. elev., 1 ♀, and Clayton, Rabun County, July '10, 1 ♀, (W. T. Davis). ALABAMA, 2 ♀, [Amer. Ent. Soc.]. TEXAS, 2 ♀, [Amer. Ent. Soc.].